and, as it grew, improved yet more. A third appeared, and then a fourth, which was yet more nearly perfect, though the stem was thick, and the tentacula imperfect. The cleft was almost healed; and now a fifth head was formed quite perfect; and after it, as perfectly, a sixth and seventh head. All these were produced in fifteen months.

"The lower half of this specimen had been cut off four months after the separation of the stem. Its upper end bore: first, an abortive head; then secondly, one which advanced further in development; a third, much better; and then, in succession, other four, which were all well formed.

"The upper portion of this lower half of the stem now showing signs of decay, a portion was cut from its lowest part, and further manifested the reproductive power of the stem; for three heads were produced from the upper end of the piece cut off, and four from the lower end of the upper piece which had seemed to be decaying. In five hundred and fifty days this specimen had grown twenty-two heads.

"Now, I cannot but think that we have, in these instances of gradual recovery from the effects of injury, a type of that gradual return to the perfect form and composition, which are noticed in the higher animals. Our theory of the process of nutrition leads us to believe that, in the constant mutation of particles in nutrition, those elements of the blood, or of any structure that have been altered by disease, in due time regenerate or die, and are cast off or absorbed, and that those which next succeed to them partake, through the assimilative force, of the same morbid character; but that, every time of renewal, the new particles, under the influence of the germ-power, approach a step nearer to the perfect state. Thus, as it were, each generation of new particles is more nearly perfect, till all the effects of the injury or the disease are quite obliterated. Surely, in the gradual recovery of perfection by these polypes, we have an apt illustration of the theory—one which almost proves its justice."—*Lond. Med. Gazette*, June, 1849.

5. *Microscopical Examination of the Contents of the Hepatic Ducts, with Conclusions founded thereon.* By T. Wharton Jones, F. R. S.—In the contents of the larger hepatic ducts there are seen, on microscopical examination: 1st, the detached columnar epithelium cells of the ducts themselves; 2d, free oval nuclei, which appear to have been derived from cells of this kind; 3d, free round nuclei, apparently derived from the proper hepatic cells; 4th, minute granules, free or in amorphous flakes, globules of oil, and fragments of cell walls. In addition to these, in the smaller ducts, are found cells resembling those of the parenchyma of the liver, except in being usually paler, on account of the contained granules and globules being fewer and more minute. Having, by way of comparison, examined the contents of the pancreatic duct, and recognized in it, with its own columnar epithelium, the free nuclei and granular amorphous matter resulting from the disintegration of the secreting cells developed within the vesicles of that gland, the author considers that, from the analogy of the products of the secreting action in the two cases, an argument may be fairly drawn in favour of the analogy in essential nature between the cells of the hepatic parenchyma and the endogenous cells of the pancreas and other glands of ordinary construction. This deduction helps to confirm the view of the structure of the liver propounded by Dr. Leidy.—*Phil. Trans.*, 1848.

ORGANIC CHEMISTRY.

6. *Sugar found in the Blood, Tissue of the Kidney, &c., but not in the Spleen and Pancreas, of a Diabetic Patient, who died suddenly.*—M. Bernard lately examined the body of a diabetic patient, under the care of M. Rayer, who died suddenly on the third day after admission into hospital. The urine, drawn off while the patient was yet warm, contained a large quantity of sugar. The liver, misshapen, and much larger than in the natural state, contained also a large proportion. The kidneys were also enlarged; the left kidney weighed 245 grammes

(nearly eight ounces), and the right, 235 grammes (seven and a half ounces). On washing the tissue of the kidneys, sugar was obtained, but in a much smaller quantity than from the liver. The pancreas and spleen were diminished in size, and contained none; nor was there any in the nervous centres. The blood contained large quantities of sugar, from whatever part it was taken. M. Bernard, in calling to mind a case in which the serum of the blood, left to itself, became acid by the decomposition of sugar, remarks that this bears on a circumstance in the present autopsy. Sugar was found in the serosity which filled the pericardium; but this same alkaline serosity, when removed from the pericardium, became acid in consequence of the decomposition of the sugar. The intestinal and gastric juices, which seem remarkably fitted for the decomposition of sugar, contained none. M. Bernard has met with sugar in the semen of a goat, which had been artificially rendered diabetic. It is interesting to know that, in cases where the tissues and fluids of a diabetic patient can be examined after sudden death, sugar may be found in the blood, liver, and kidneys. The difference in the reaction of the fluids, hitherto referred to the cause which produces the diabetes, is seen to be dependent merely on the decomposition of the sugar.—*Lond. Med. Journ.*, Aug. 1849, from *Gazette des Hôpitaux*, July 10th, 1849.

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7. *On the Composition of the Salts of the Blood, and of their Relation to the Formation of Vesical Calculi.*—M. Verdeit states that the proportions of the different saline compounds in the blood are greatly affected by the nature of the diet; the blood of animals nourished exclusively on flesh being rich in phosphates, with alkaline bases, and containing scarcely any alkaline carbonates; whilst the blood of animals restricted to vegetable diet presents the reverse condition, the alkaline carbonates being present in large amount, and the phosphates existing in it in very small quantity. These differences present themselves not only between the blood salts of carnivorous and of herbivorous animals respectively, but also between those of the same animal nourished for a time upon an animal and a vegetable diet exclusively. Thus, the blood of a dog fed upon meat for eighteen days yielded 12.75 parts of alkaline phosphates in 100 of ash; but, when it had been partly fed for fifteen days upon bread and potatoes, the proportion fell to 9 per cent.; "and if," says the author, "I had been able to sustain it on an exclusively vegetable diet, the amount would have fallen to 2 or 3 per cent., as in the blood of the ox or the sheep." These observations, if confirmed, will have a very important bearing upon the treatment of calculous disorders, since urinary deposits consist, in by far the greater number of cases, either of uric acid or of phosphates. Now, uric acid is sparingly soluble in water, and still less so in acid urine [this does not agree with the statements of Liebig, which have been confirmed on this point by others]; but it is rendered much more soluble by the presence of alkalies in the urine. Now, as the acidity of the urine is due to the excess of phosphoric acid, which is the result of an animal diet, a vegetable diet, which will render the urine alkaline like that of the herbivorous animals, is indicated. On the other hand, if the phosphates constitute the materials of the deposit, their amount in the blood and urine may be lowered in the same manner.—*Brit. and For. Med.-Chirurg. Rev.*, July, 1849, from *Gazette Médicale*, June, 1849.

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8. *Investigations and Experiments on Human Blood.* — Dr. Giovanni Polli, well known by his iatro-chemical labours, has published, in the *Giornale Lombardò di Scienze, &c.*, a memoir on human blood. Of this highly interesting paper we shall give a brief analysis.

Buffy Coat.—Dr. Polli thinks, with many other pathologists, that the formation of this substance depends on the greater or less rapidity of the coagulation. The white, depressed, and very thick buffy coat points to blood slow in coagulating, and rich in fibrine; the clot is then dark red, and so much the softer as the buffy coat is firmer. The gelatiniform coat indicates, likewise, slow coagulation, but a diminution in the amount of fibrine. A rugose coat denotes the slowest coagulation. A clot both buffed and cupped, and adhering to the parietes of the vessel, results from thin blood which has pretty rapidly